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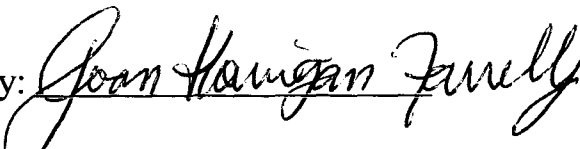
March 2009



**Sodium Hydroxide
(Mineral Bases, Strong)
Final Registration Review Decision
Registration Review Case 4065**

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Approved by: 
Jean Harrigan-Farrelly, Director
Antimicrobials Division

Date: 3/12/2009

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I. INTRODUCTION:

This document is EPA's Final Registration Review Decision for sodium hydroxide (mineral bases, strong) and is being issued pursuant to 40 CFR Sections 155.57 and 155.58. A registration review decision is the Agency's determination whether a pesticide meets, or does not meet, the standard for registration in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). For additional information on sodium hydroxide (mineral bases, strong), additional documents can be found in EPA's public docket (EPA-HQ-OPP-2007-0922) at www.regulations.gov.

FIFRA, as amended by the Food Quality Protection Act (FQPA) of 1996, mandated the continuous review of existing pesticides. All pesticides distributed or sold in the United States must generally be registered by EPA, based on scientific data showing that they will not cause unreasonable risks to human health (including occupational and non-occupational exposures) or the environment when used as directed on the product labeling. The new registration review program is intended to make sure that, as the ability to assess risk evolves and as policies and practices change, all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects to human health or the environment. Changes in science, public policy, and pesticide use practices will occur over time. Through the new registration review program, the Agency periodically reevaluates pesticides to make sure that as change occurs, products in the marketplace can be used safely. Information on this program is provided at: http://www.epa.gov/oppsrrd1/registration_review/.

In 2006, the Agency implemented the Registration Review program pursuant to FIFRA Section 3(g) and will review each registered pesticide every 15 years to determine whether it continues to meet the FIFRA standard for registration.

There are two active ingredients in the Mineral bases, strong, case 4065; however, one of these active ingredients, potassium hydroxide, does not have any registered products. Therefore, this chemical is not being addressed in this registration review. Sodium hydroxide (mineral bases, strong) (PC code 075603) is the only active ingredient in the case with any registered products. Therefore, potassium hydroxide was removed from case 4065 pursuant to 40 CFR 155.42(b)(5).

Pursuant to 40 CFR Sec. 155.50, the Agency formally initiated registration review for sodium hydroxide (mineral bases, strong) with the following timeline:

- December 2007 – publication of a Preliminary Work Plan (PWP) in the docket for sodium hydroxide (mineral bases, strong) (EPA-HQ-OPP-2007-0922). During the 90 day comment period that closed on March 11, 2008, the Agency received no comments from the public.
- August 2008 – Issuance of a Final Work Plan and Proposed Registration Review Final Decision stating that the most recent exposure and risk assessments still support the registration of pesticide products containing sodium hydroxide (mineral bases, strong) and meet the requirements of registration review. This document also announced the removal of potassium hydroxide from the case. This document was issued for a 60-day

public comment period. No comments were received on the Final Work Plan and Proposed Registration Review Final Decision.

No comments were received on the preliminary work plan (PWP), issued on December 5, 2007, or the combined Final Work Plan and Proposed Registration Review Final Decision, issued on August 29, 2008. The Agency is making its final decision on sodium hydroxide (mineral bases, strong) based on no comments having been received, and the low toxicity of sodium of the active ingredient. In addition, the data and information evaluated to support sodium hydroxide (mineral bases, strong), case 4065, as published in the PWP dated December 5, 2007, continue to support this pesticide registration as summarized herein. The status of these and other registration review cases is available on [http://www.epa.gov/oppsrrd1/registration review/ review](http://www.epa.gov/oppsrrd1/registration%20review/review). Additional information is available in the Reregistration Eligibility Decision document available on http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

Sodium hydroxide (mineral bases, strong), is an antimicrobial pesticide that is used as a disinfectant and sanitizer in residential and public access premises. Sodium hydroxide (mineral bases, strong) is used to disinfect and sanitize kitchens and counter tops, microwaves, bathrooms and shower stalls, toilets, diaper pails and changing tables, garbage cans, pet areas, finished hardwood flooring and furniture, and automotive surfaces. Sodium hydroxide (mineral bases, strong) is characterized by low toxicity. There are only two products registered for pesticidal use; these products are registered for indoor use and have a low percentage of active ingredient in the end use product (<0.5% ai). In addition, sodium hydroxide (mineral bases, strong) is highly reactive and is rapidly neutralized by organic chemicals in soil. It dissociates immediately in water to sodium cations (Na^+) and hydroxide anions (OH^-) and finally decomposes to water. Sodium hydroxide (mineral bases, strong) is not expected to contaminate ground water or soil and does not accumulate in the food chain. Because of the rapid degradation of sodium hydroxide (mineral bases, strong) into components that do not pose a risk to aquatic organisms, the Agency is not conducting a down-the-drain assessment. In addition, sodium hydroxide (mineral bases, strong) is considered generally recognized as safe (GRAS) by the Food and Drug Administration (FDA) for use in foods under 21 CFR 184.1763. For additional information please see the Sodium Hydroxide Reregistration Eligibility Decision (RED) document that was issued in 1992 and that is available on http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

The sodium hydroxide RED included an evaluation of human health, including dietary, and occupational exposures, environmental fate, and ecological risks. Currently, there are two registered products containing sodium hydroxide (mineral bases, strong) as the sole active ingredient. This Registration Review of sodium hydroxide (mineral bases, strong) addresses the sodium hydroxide (mineral bases, strong) active ingredient of the two registered products.

II. SCIENTIFIC ASSESSMENT

A. Chemical Identification

Table 1 provides information on the chemical identity of sodium hydroxide (mineral bases, strong).

Table 1. Chemical Identity

Common Name	Mineral bases, strong
Chemical Name	Sodium Hydroxide
Molecular Weight	40.0
PC Code	075603
CAS Registry Number	1310-73-2
Empirical Formula	NaOH
Registration Review Case No.	4065
Chemical Structure:	Na—OH

B. Product Chemistry

Table 2 provides information on the physical and chemical properties of sodium hydroxide (mineral bases, strong). All product chemistry data requirements have been fulfilled for the active ingredient sodium hydroxide (mineral bases, strong); no additional data are needed at this time.

Table 2. Product Chemistry Data Summary for Sodium Hydroxide (Mineral Bases, Strong)

Guideline Number	Requirement	Status	Results
830.1550	Product identity and composition	Acceptable	Refer to Table 2
830.1600	Description of materials used to produce the product	Acceptable	CBI
830.1620	Description of production process	Acceptable	CBI
830.1650	Description of formulation process	Acceptable	CBI
830.1670	Discussion of formation of impurities	Acceptable	CBI
830.1700	Preliminary analysis	Acceptable	CBI
830.1750	Certified limits	Acceptable	CBI
830.1800	Enforcement analytical	Acceptable	Titration

Guideline Number	Requirement	Status	Results
	method		
830.1900	Submittal of samples	N/A	
830.6302	Color	Acceptable	White Solid
830.6303	Physical State	Acceptable	White solid, deliquescent pellets or flakes
830.6304	Odor	Acceptable	Odorless
830.6313	Stability to sunlight, normal and elevated temperature, metals/metal ions	Acceptable	<p>Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate.</p> <p>Reacts with acid and reactive metals such as aluminum and zinc.</p> <p>Sodium hydroxide (mineral bases, strong) does not attack iron or copper, but other metals such as aluminum, zinc and titanium are attacked rapidly.</p>
830.6314	Oxidation/Reduction: Chemical Incompatibility	N/A	<p>Oxidizing Properties: Not applicable.</p> <p>Incompatibilities: Sodium hydroxide (mineral bases, strong) in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide (mineral bases, strong), even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide.</p>
830.6315	Flammability	Acceptable	Noncombustible. However, if solid NaOH is mixed with water or acid it may generate enough heat to ignite combustible materials.
830.6316	Explosibility	Acceptable	No
830.6317	Storage Stability		Should be stored in airtight containers
830.6320	Corrosion Characteristic	Acceptable	Corrosive. Very corrosive to aluminum metal.
830.6321	Dielectric breakdown voltage	N/A	
830.7000	pH (0.5% solution) 0.01 moles/liter	Acceptable	13 – 14 12
830.7050	UV/Visible absorption	N/A	
830.7100	Viscosity		4.0 cP at 350°C (TOXNET)
830.7200	Melting Point	Acceptable	318°C (604°F)
830.7220	Boiling point	Acceptable	1390°C
830.7300	Density Bulk Density	Acceptable	2.1 g/cm ³ 58.8 lbs. per cubic ft.
830.7300	Specific Gravity	Acceptable	2.13
830.7370	Dissociation Constants in water (pKa)	Acceptable	Dissociates completely in water to sodium cations (Na ⁺) and hydroxide anions (OH ⁻)
830.7550	Octanol/water partition coefficient	Acceptable	Not organic and non-polar Too low to be measured.

Guideline Number	Requirement	Status	Results
			Not relevant for ionisable compounds.
830.7840	Water solubility (25°C)(g/100ml)	Acceptable	111 g/100 g of water (111%). 109 g/100 ml of water at 20°C. Extremely soluble in water and great deal of heat is liberated during solution. Completely soluble
830-xxxx	Solubility in organic solvents (g/100mL)		Insoluble in ether and other non-polar solvents. Exhibits lower solubility in ethanol and methanol.
830.7950	Vapor pressure	Acceptable	Negligible. Less than 0.1 mm Hg at room temp Not volatile
	Hazardous Polymerization		Will not occur
	Hazardous Decomposition Products		Decomposition by reaction with certain metals releases flammable and explosive hydrogen gas
Other Physical/Chemical Properties			
	Classification of a.i.		Inorganic
	Henry's Law Constant		9.579E-029 atm-m3/mole (EPI Suite)
	Log Kow		-3.88 (EPI Suite)
	Koc (Estimated)		14.3 (EPI Suite)
	Log Koc		1.1553 (EPI Suite)
	Ready Biodegradability		Not Applicable
	Estimated Log BCF		0.50 (EPI Suite)
	BCF		3.162 (EPI Suite)

C. Human Health Risk Assessment Status

1. Toxicology

The Agency has reviewed all toxicity studies submitted for sodium hydroxide (mineral bases, strong) and has determined that the toxicological database is sufficient. The toxicological database for sodium hydroxide (mineral bases, strong) is currently comprised of published and unpublished studies either submitted to the Agency or obtained directly from published open literature.¹ The Food and Drug Administration (FDA) considers sodium hydroxide (mineral bases, strong) Generally Recognized as Safe (GRAS) for use in foods under 21 CFR 184.1763.

Sodium hydroxide (mineral bases, strong) is miscible in water and dissociates to sodium and hydroxide ions. The pH of a 0.05% solution is about 12, of a 0.5% solution about 13². Sodium hydroxide (mineral bases, strong) is corrosive and irritating to skin, eyes, and mucous membranes. High doses of sodium hydroxide (mineral bases, strong) in animals and humans can result in acute symptoms such as vomiting, scarring and damage to the respiratory tract. Based on the corrosivity and alkalinity of sodium hydroxide (mineral bases, strong) which

¹ Agency for Toxic Substances and Disease Registry. <http://www.atsdr.cdc.gov/MHMI/mmg178.html>, 2002.

² Budavari, S. (ed.). *The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals*. Whitehouse Station, NJ: Merck and Co., Inc., 1996., p. 1477.

has been identified in the existing literature and the previous sodium hydroxide (mineral bases, strong) RED, the Agency has assigned sodium hydroxide (mineral bases, strong) as acute toxicity category I for skin and eye irritation. An acute oral toxicity category of II was based on a lethal dose for rabbits that was reported to be 500 mg/kg. Sodium hydroxide (mineral bases, strong) has a negligible vapor pressure and is rapidly neutralized in air by carbon dioxide. For additional information please see the Sodium Hydroxide Reregistration Eligibility Decision (RED) document that was issued in 1992 and that is available on

http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

The Agency has not required repeated dose toxicity tests with sodium hydroxide (mineral bases, strong) because it dissociates in water immediately to sodium and hydroxyl ions. At high doses via the oral route the substance is irritating or corrosive, while at low doses the hydroxide will be neutralized by the stomach acids. Any free alkali (hydroxide) that might be present in food from migration from food processing, is rapidly converted to neutral salts in the stomach. In the environment when hydrolyzed, sodium hydroxide (mineral bases, strong) will dissociate completely to sodium and hydroxyl ions. The long term hazard of sodium has been characterized completely in the existing scientific literature. The systemic toxicity of sodium hydroxide is negligible; sodium hydroxide is neutralized to salt water in the stomach. In addition, the potential dermal irritation and corrosivity that may impact users of sodium hydroxide products are mitigated because of the low concentration of end use products, and dilution. For additional information please see the Sodium Hydroxide Reregistration Eligibility Decision (RED) document that was issued in 1992 and that is available on

http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

EPA is required by the Federal Food, Drug and Cosmetic Act (FFDCA), as amended by FQPA, to develop a screening program to determine whether certain substances (including all pesticide product active and other ingredients) “may have an effect in humans that is similar to an effect produced by a naturally occurring estrogen, or such other endocrine effect as the Administrator may designate.” Following the recommendations of its Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC), EPA determined that there was a scientific basis for including, as part of the program, androgen and thyroid hormone systems, in addition to the estrogen hormone system. EPA also adopted EDSTAC’s recommendation that it include evaluations of potential effects in wildlife.

The Agency has no knowledge of sodium hydroxide (mineral bases, strong) being an endocrine disruptor. When the appropriate screening and/or testing protocols being considered under the Agency’s Endocrine Disrupter Screening Program (EDSP) have been developed and vetted, sodium hydroxide (mineral bases, strong) may be subjected to additional screening and/or testing to better characterize effects related to endocrine disruption.

Although the toxicity data base for sodium hydroxide (mineral bases, strong) is limited, the toxicity profile indicates no significant systemic toxicity because sodium hydroxide (mineral bases, strong) is neutralized to salt water in the stomach. However, currently registered product labels indicate that sodium hydroxide (mineral bases, strong) is used in low concentrations (<0.5% ai) and is diluted in water. Because of the low concentration of active ingredient in end use products and the label directions for dilution, the Agency believes that occupational or

residential users of registered products will be adequately protective from the irritating effects of sodium hydroxide (mineral bases, strong). Therefore, a quantitative assessment is not being conducted and no human health toxicity endpoints for the active ingredient sodium hydroxide (mineral bases, strong) have been selected. The Agency does not anticipate the need for additional toxicity data for sodium hydroxide (mineral bases, strong).

2. Dietary, Drinking Water, Residential and Occupational Exposure and Risk Assessment Status

a. Dietary and Drinking Water Exposure and Risk Assessment

Dietary (food and drinking water) exposures of concern are not anticipated for sodium hydroxide (mineral bases, strong). The Food and Drug Administration (FDA) considers sodium hydroxide (mineral bases, strong) as generally recognized as safe (GRAS) for use in foods under 21 CFR 184.1763. In general, substances are considered GRAS because their safety had been established by a long history of use in food or by virtue of the nature of the substances, their customary or projected conditions of use, and the information generally available to scientists about the substances. According to the FDA's Select Committee on GRAS Substances (SCOGS) Database, "The Select Committee has found no data suggesting that the use of sodium or potassium hydroxides, as currently practiced in food processing, is hazardous to consumers. The corrosive effect of ingestion of large amounts of strong alkalis such as sodium and potassium hydroxides has been amply demonstrated. However, these alkalis are not present as such in consumed food. The small amount of sodium and potassium hydroxide added for pH adjustment during food processing reacts rapidly with food acids to form neutral salts. Moreover, any free alkali that might be present in food, either from direct addition or from migration from packaging materials, is rapidly converted to neutral salts in the stomach. The amounts of sodium and potassium hydroxide used in food processing contribute only 2 to 5 percent of the total sodium and potassium intake from all dietary sources. Accordingly, these alkalis, as now used in food processing, do not add significantly to the usual dietary load of sodium and potassium. In light of the foregoing, and the information elsewhere in this report, the Select Committee concludes that: There is no evidence in the available information on potassium hydroxide or sodium hydroxide (mineral bases, strong) that demonstrates, or suggests reasonable grounds to suspect a hazard to the public, when they are used at levels that are now current or that might reasonably be expected in the future." Additional information can be found on FDA's at website <http://www.cfsan.fda.gov/~dms/opascogd.html>.

Based on the information discussed above, quantitative dietary and drinking water assessments were not conducted for sodium hydroxide (mineral bases, strong).

b. Residential and Occupational Exposure and Risk Assessment

Based on minimal occupational and residential exposures and low toxicity, the Agency did not conduct additional occupational or residential exposure assessments. Sodium hydroxide (mineral bases, strong) is miscible in water and dissociates to sodium and hydroxide ions. Sodium hydroxide (mineral bases, strong) is corrosive and irritating to skin, eyes, and mucous membranes. However, current registered labels indicate that sodium hydroxide (mineral bases, strong) is used in low concentrations (<0.5% ai) and is diluted in water. The Agency believes that occupational or residential users of registered products will be adequately protected from the

irritating effects of sodium hydroxide (mineral bases, strong) because of the low concentration of active ingredient in end use products combined with the label directions for dilution.

D. Environmental Fate and Ecological Effects Exposure and Risk Assessment Status

1. Environmental Fate

The Agency has no environmental fate data on sodium hydroxide (mineral bases, strong); however, there is sufficient information in the public literature on the fate of sodium hydroxide (mineral bases, strong) in the environment. Therefore, the Agency has waived all environmental fate data requirements for sodium hydroxide (mineral bases, strong). For additional information please see the Sodium Hydroxide Reregistration Eligibility Decision (RED) document that was issued in 1992 and that is available on http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

Sodium hydroxide (mineral bases, strong) is completely ionic, containing sodium cations and hydroxide anions. When sodium hydroxide (mineral bases, strong) enters the environment, it would be expected to raise the pH of the water or soil. However, sodium hydroxide (mineral bases, strong) is highly reactive and is rapidly neutralized by organic chemicals in soil. It dissociates completely in water to sodium cations (Na^+) and hydroxide anions (OH^-) and finally decomposes to water. Sodium hydroxide (mineral bases, strong) is not expected to contaminate ground water or soil and does not accumulate in the food chain.

2. Ecological Effects

Given the fate characteristics described in the previous section, no ecological risk assessment has been performed for sodium hydroxide (mineral bases, strong). None of the registered pesticide products containing the active ingredient sodium hydroxide (mineral bases, strong) are likely to cause unreasonable adverse effects in the environment. The Agency has conducted a review of the scientific data bases and other relevant information supporting the registration of sodium hydroxide (mineral bases, strong), and all ecological effects data requirements have been waived for this active ingredient. The information and data available to the Agency support the conclusion that the currently registered uses of sodium hydroxide (mineral bases, strong) will not result in unreasonable adverse effects to the environment. For additional information please see the Sodium Hydroxide Reregistration Eligibility Decision (RED) document that was issued in 1992 and that is available on http://www.epa.gov/oppsrrd1/REDs/old_reds/sodium_hydroxide.pdf.

3. Endangered Species

As mentioned previously, sodium hydroxide (mineral bases, strong) has low toxicity. There are only two products registered for pesticidal use; these products are registered for indoor use and have a low percentage of active ingredient in the end use product (<0.5% ai). In addition, sodium hydroxide (mineral bases, strong) is highly reactive and is rapidly neutralized by organic chemicals in soil. It dissociates immediately in water to sodium cations (Na^+) and hydroxide anions (OH^-) and finally decomposes to water. Sodium hydroxide (mineral bases, strong) is not expected to contaminate ground water or soil and does not accumulate in the food chain. Because of the rapid degradation of sodium hydroxide (mineral bases, strong) into components that do not pose a risk to aquatic organisms, the Agency is not conducting a down-the-drain assessment.

Based on rapid decomposition, indoor use patterns, no-to-extremely low environmental exposure potential, and low toxicity, the Agency has determined that the registered pesticidal uses of sodium hydroxide (mineral bases, strong) will have “no effect” (NE) on endangered or threatened terrestrial or aquatic species, or their designated critical habitats, as listed by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA).

E. Incidents

Federal law requires registrants of pesticides to inform EPA about any harmful effects of their products. There are 14 incidents records in the OPP Incident Data System (IDS) for sodium hydroxide (mineral bases, strong). Usually exposure in these incidents involves more than one chemical in addition to sodium hydroxide (mineral bases, strong). Minor to moderate symptoms reported in these human incidents include blistering, asthma, bleeding, swollen eyes, chest pain, corneal abrasion, cracked skin on hands.

Based on the low number of incidents reported for products containing sodium hydroxide (mineral bases, strong), and the low toxicity of this compound, the Agency believes that these incident reports may not indicate a specific sodium hydroxide (mineral bases, strong)-related cause.

F. Public Comments

Pursuant to 40 CFR Sec. 155.50, the Agency formally initiated registration review for sodium hydroxide (mineral bases, strong) on December 12, 2007, with the opening of a docket and the issuance of a PWP for public comment. The Agency received no comments concerning the Preliminary Work Plan for sodium hydroxide (mineral bases, strong) during the 90-day public comment period. In addition, the Agency received no comments on the Proposed Registration Review Final Decision that was issued for comment on August 29, 2008.

G. Environmental Justice

EPA seeks to achieve environmental justice - the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income - in the development, implementation, and enforcement of environmental laws, regulations, and policies. At this time EPA does not believe that use of pesticide products containing sodium hydroxide (mineral bases, strong) will cause harm or a disproportionate impact on at-risk communities. In the Preliminary Work Plan dated December 12, 2007, the Agency sought comment on environmental justice issues regarding sodium hydroxide (mineral bases, strong). As mentioned previously, no comments were received.

For additional information regarding environmental justice issues, please visit EPA's website at: <http://www.epa.gov/compliance/environmentaljustice/index.html>.

H. Water Quality

Sodium hydroxide (mineral bases, strong) is not identified as a cause of impairment for any water-bodies listed as impaired under section 303(d) of the Clean Water Act, based on information provided at: http://oaspub.epa.gov/tmdl/waters_list impairments?p_impid=3. The Agency sought submission of water quality information for sodium hydroxide (mineral bases, strong) when the Preliminary Work Plan was issued for comment. The Agency did not receive any comments on water quality issues.

I. Trade Irritants

Through the registration review process, the Agency solicited information on trade irritants and, to the extent feasible, take steps toward facilitating irritant resolution. Growers and other stakeholders were asked to comment on any trade irritant issues resulting from lack of Maximum Residue Levels (MRLs) or disparities in key export markets, providing as much specificity as possible regarding the nature of the concern. In the case of sodium hydroxide (mineral bases, strong), there are indirect food uses as sodium hydroxide (mineral bases, strong) is registered for use as a disinfectant and contact surface sanitizer in residential and public access premises. Sodium hydroxide (mineral bases, strong) is characterized by low toxicity, and is considered generally recognized as safe (GRAS) by the Food and Drug Administration (FDA) for use in foods under 21 CFR 184.1763. Additionally, there are no MRLs established for sodium hydroxide (mineral bases, strong). The Agency did not receive any comments regarding the existence of any trade irritant issues associated with sodium hydroxide (mineral bases, strong).

III. FINAL REGISTRATION REVIEW DECISION

The Agency has determined that no additional data are required at this time to support the registration of sodium hydroxide (mineral bases, strong). The Agency has considered sodium hydroxide (mineral bases, strong) in light of the standard for registration and safety factors in FIFRA and FFDCA as amended by FQPA. EPA has found that there are not likely to be any unreasonable adverse effects to the U.S. population in general, and to infants and children in particular, or to non-target organisms or the environment, from the use of registered pesticide products containing sodium hydroxide (mineral bases, strong) when currently required label instructions are followed. The Agency has found that it is not necessary to conduct a new risk assessment for this case and is therefore issuing a final decision pursuant to 40 CFR 155.53 (c)(2) and 40 CFR 155.58.

As per 40 CFR Sections 155.57 and 155.58, the Agency determined that the standards for Registration Review have been met, and that the registrations of the aforesaid sodium hydroxide (mineral bases, strong) products may be maintained.

IV. NEXT STEPS AND TIMELINE:

Pursuant to 40 CFR Section 155.58, this Final Registration Review Decision document is being entered into the sodium hydroxide (mineral bases, strong) docket (EPA-HQ-OPP-2007-0922). A Federal Register Notice will announce the availability of the Final Registration Review Decision.

V. GLOSSARY of TERMS & ABBREVIATIONS

ai	Active Ingredient
AR	Anticipated Residue
ASTM	American Society for Testing and Materials
AWPA	American Wood Preserver's Association
CFR	Code of Federal Regulations
cPAD	Chronic Population Adjusted Dose
CSF	Confidential Statement of Formula
CSFII	USDA Continuing Surveys for Food Intake by Individuals
DCI	Data Call-In
DEEM	Dietary Exposure Evaluation Model
DFR	Dislodgeable Foliar Residue
DNT	Developmental Neurotoxicity
DWLOC	Drinking Water Level of Comparison
EC	Emulsifiable Concentrate Formulation
EDWC	Estimated Drinking Water Concentration
EEC	Estimated Environmental Concentration
EPA	Environmental Protection Agency
EUP	End-Use Product
FDA	Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FFDCA	Federal Food, Drug, and Cosmetic Act
FQPA	Food Quality Protection Act
FOB	Functional Observation Battery
GENEEC	Tier I Surface Water Computer Model
IR	Index Reservoir
LC ₅₀	Median Lethal Concentration. A statistically derived concentration of a substance that can be expected to cause death in 50% of test animals. It is usually expressed as the weight of substance per weight or volume of water, air or feed, e.g., mg/l, mg/kg or ppm.
LD ₅₀	Median Lethal Dose. A statistically derived single dose that can be expected to cause death in 50% of the test animals when administered by the route indicated (oral, dermal, inhalation). It is expressed as a weight of substance per unit weight of animal, e.g., mg/kg.
LOC	Level of Concern
LOAEL	Lowest Observed Adverse Effect Level
µg/g	Micrograms Per Gram
µg/L	Micrograms Per Liter
mg/kg/day	Milligram Per Kilogram Per Day
mg/L	Milligrams Per Liter
MOE	Margin of Exposure
MRID	Master Record Identification (number). EPA's system of recording and tracking submitted studies.
MUP	Manufacturing-Use Product
NA	Not Applicable
NAWQA	USGS National Ambient Water Quality Assessment
NPDES	National Pollutant Discharge Elimination System
NR	Not Required
NOAEL	No Observed Adverse Effect Level
OPP	EPA Office of Pesticide Programs
OPPTS	EPA Office of Prevention, Pesticides and Toxic Substances
PAD	Population Adjusted Dose
PAIRA	Pure Active Ingredient Radiolabelled
PCA	Percent Crop Area
PDP	USDA Pesticide Data Program

PHED	Pesticide Handler's Exposure Data
PHI	Preharvest Interval
ppb	Parts Per Billion
PPE	Personal Protective Equipment
ppm	Parts Per Million
PRZM/EXAMS	Tier II Surface Water Computer Model
Q ₁ *	The Carcinogenic Potential of a Compound, Quantified by the EPA's Cancer Risk Model
RAC	Raw Agriculture Commodity
RED	Reregistration Eligibility Decision
REI	Restricted Entry Interval
RfD	Reference Dose
RQ	Risk Quotient
SCI-GROW	Tier I Ground Water Computer Model
SAP	Science Advisory Panel
SF	Safety Factor
SLN	Special Local Need (Registrations Under Section 24©) of FIFRA)
TGAI	Technical Grade Active Ingredient
TEP	Typical End-Use Product
USDA	United States Department of Agriculture
UF	Uncertainty Factor
WPS	Worker Protection Standard